OPERATOR'S MANUAL

Model
410 Series

IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022 Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC. P.O. BOX 368022 CLEVELAND, OHIO 44136-9722

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SECTION 1: IMPORTANT SAFE OPERATION PRACTICES

WARNING: THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR LAWN MOWER. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY. WHEN YOU SEE THIS SYMBOL, HEED ITS WARNING.

WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

DANGER: Your lawn mower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This lawn mower is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

1. GENERAL OPERATION

- Read this operator's manual carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine and in the manual(s) before operation. Be completely familiar with the controls and the proper use of this machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
- Your rotary mower is a precision piece of power equipment, not a plaything. Therefore, exercise extreme caution at all times. Your unit has been designed to perform one job: to mow grass. Do not use it for any other purpose.
- Never allow children under 14 years old to operate a power mower. Children 14 years old and over should only operate mower under close parental supervision. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use your mower.
- Keep the area of operation clear of all persons, particularly small children and pets. Stop engine when they are in the vicinity of your mower to help prevent blade contact or thrown object injury. Although the area of operation should be completely cleared of foreign objects, an object may have been overlooked and could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area.
- Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Shirts and pants that cover the arms and legs and steel-toed shoes are recommended. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, slippery or light weight (e.g. canvas) shoes.
- Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes from foreign objects that may be thrown from the machine in any direction.
- Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones, toys and other foreign objects which could be picked up and thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. To help avoid a thrown objects injury, keep children, bystanders and helpers at least 75 feet from the mower while it is in operation.
- Do not put hands or feet near or under rotating parts. Keep clear of discharge opening at all times as the rotating blade can cause injury.
- Many injuries occur as a result of the mower being pulled over the foot during a fall. Do not hang on to the mower if you are falling; release the handle immediately.
- Never pull the mower toward you while you are walking. If you must back the mower away from a wall or obstruction first look down and behind, and then follow these steps:
    - Step back from the mower to fully extend your arms.
    - Be sure you are well balanced with sure footing.
    - Pull the mower back slowly, no more than half way toward you.
    - Repeat these steps as needed.
- Do not operate the mower while under the influence of alcohol or drugs.

- Do not engage the self-propelled mechanism on units so equipped while starting engine.
- The blade control handle is a safety device. Never attempt to bypass its operation. Doing so makes the safety device inoperative and may result in personal injury through contact with the rotating blade. The blade control handle must operate easily in both directions and automatically return to the disengaged position when released.
- Never operate the mower in wet grass. Always be sure of your footing. A slip and fall can cause serious personal injury. Keep a firm hold on the handle and walk, never run. If you feel you are losing your footing, RELEASE THE BLADE CONTROL HANDLE IMMEDIATELY and the blade will stop rotating within three seconds.
- Mow only in daylight or good artificial light.
- Stop the blade when crossing gravel drives, walks or roads.
- If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
- Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher or unclogging the chute. The cutting blade continues to rotate for a few seconds after the engine is shut off. Never place any part of the body in the blade area until you are sure the blade has stopped rotating.
- Never operate mower without proper guards, grass catcher, plates or other safety protective devices in place.
- Muffler and engine become hot and can cause a burn. Do not touch.
- Only use accessories approved for this machine by the manufacturer. Read, understand, and follow all instructions provided with the approved accessory.
- If situations occur which are not covered in this manual, use care and good judgment. Contact your dealer for assistance. Telephone 1-800-800-7310 for the name of your nearest dealer.

2. SLOPE OPERATION

For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15 degrees as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

DO:

- Mow across the face of slopes; never up and down. Exercise extreme caution when changing direction on slopes.
- Watch for holes, ruts, hidden objects, or bumps. Tall grass can hide obstacles.
- Always be sure of your footing. A slip and fall can cause serious personal injury. If you feel you are losing your balance release the blade control handle immediately and the blade will stop in less than 3 seconds.

DO NOT:

- Do not mow near drop-offs, ditches or embankments. The operator could lose footing or balance.
- Do not mow slopes greater than 15 degrees as shown on the slope gauge.
- Do not mow on wet grass. Reduced footing could cause slipping.

3. CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the mower and the mowing activity. Never assume that children will remain where you last saw them.

- Keep children out of the mowing area and under the watchful care of a responsible adult other than the operator.
- Be alert and turn mower off if a child enters the area.
- Before and while moving backwards, look behind and down for small children or other objects.
- Never allow children under age 14 to operate the mower. Children 14 years of age and above should read and understand the operation instructions and safety rules in this manual.
- Use extreme care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision of a child or hazard.

4. SERVICE

- Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
- Use only an approved gasoline container.
- Never remove gas cap or add fuel while the engine is running. Allow engine to cool at least two minutes before refueling.
- Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never refuel machine indoors because flammable vapors will accumulate in the area.
- Never store the machine or fuel container inside where there is an open flame or spark such as a gas water heater, space heater, or furnace.
- Never run an engine inside a closed area.

- To reduce fire hazard, keep mower free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. Allow mower to cool at least 5 minutes before storing.
- Before cleaning, repairing, or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.
- Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., bent, cracked or worn). Replace with blade which meets original equipment specifications listed in this manual.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never tamper with safety devices. Check their proper operation regularly.
- After striking a foreign object, stop the engine, remove the wire from the spark plug, and thoroughly inspect the mower for any damage. Repair the damage before starting and operating the mower.
- Never attempt to make a wheel or cutting height adjustment while the engine is running.
- Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. For safety protection, frequently check components and replace with manufacturer's recommended parts, when necessary.
- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
- Do not change the engine governor setting or overspeed the engine. Excessive engine speeds are dangerous.

WARNING - YOUR RESPONSIBILITY: Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

TO REDUCE THE RISK OF INJURY, DO NOT OPERATE MOWER UNLESS REAR TRAILING SHIELD AND THIS GUARD OR ENTIRE GRASS CATCHER IS IN ITS PROPER PLACE.
DANGER
KEEP HANDS and FEET AWAY
DANGER
KEEP HANDS AND FEET AWAY FROM ROTATING PARTS WHEN MOTOR IS RUNNING.
OBJECTS CAN BE THROWN IN ANY DIRECTION. WEAR SAFETY GLASSES.
ALLOW NO CHILDREN ON OR NEAR THE MOWER.
USE EXTRA CAUTION ON SLOPES, MOW ACROSS; NEVER UP AND DOWN. NEVER PULL MOWER CLOSE TO YOUR FEET.
MAX 15°
REFER TO SAFE OPERATION PRACTICES IN YOUR OWNER'S MANUAL
DO NOT OPERATE MOWER WITHOUT TRAILING SHIELD AND DISCHARGE COVER

Figure 1 Safety Labels Found On Lawn Mower

SECTION 2: FINDING YOUR MODEL NUMBER

This Operator's Manual is an important part of your new walk behind. It will help you assemble, prepare and maintain your walk behind. Please read and understand what it says.

Before you start to prepare your walk behind for its first use, please locate the model plate and copy the information from it in this Operator's Manual. The information on the model plate is very important if you need help from your dealer or the MTD customer support department.

- Every walk behind has a model plate. You can locate it by standing behind the unit in the operating position and looking down at the rear of the deck.
- The model plate will look like Figure 2.

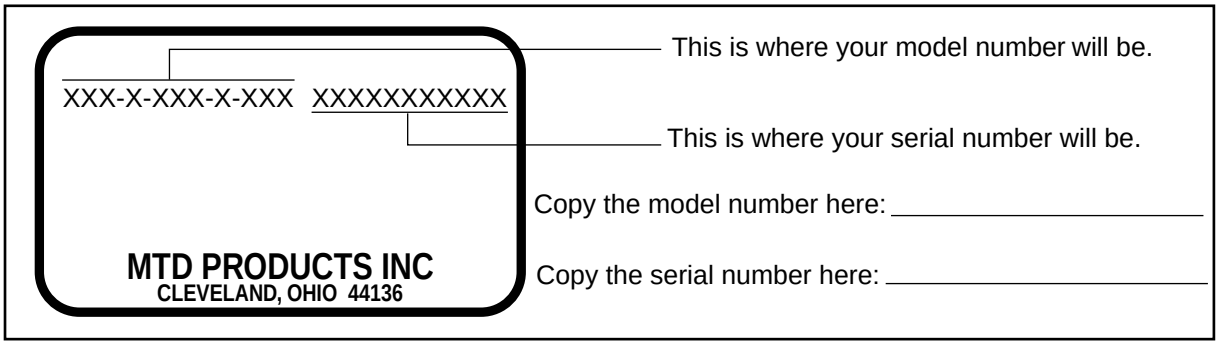

XXX-X-XXX-X-XXX
XXXXXXXXXXX
MTD PRODUCTS INC
CLEVELAND, OHIO 44136
This is where your model number will be.
This is where your serial number will be.
Copy the model number here:
Copy the serial number here:

Figure 2

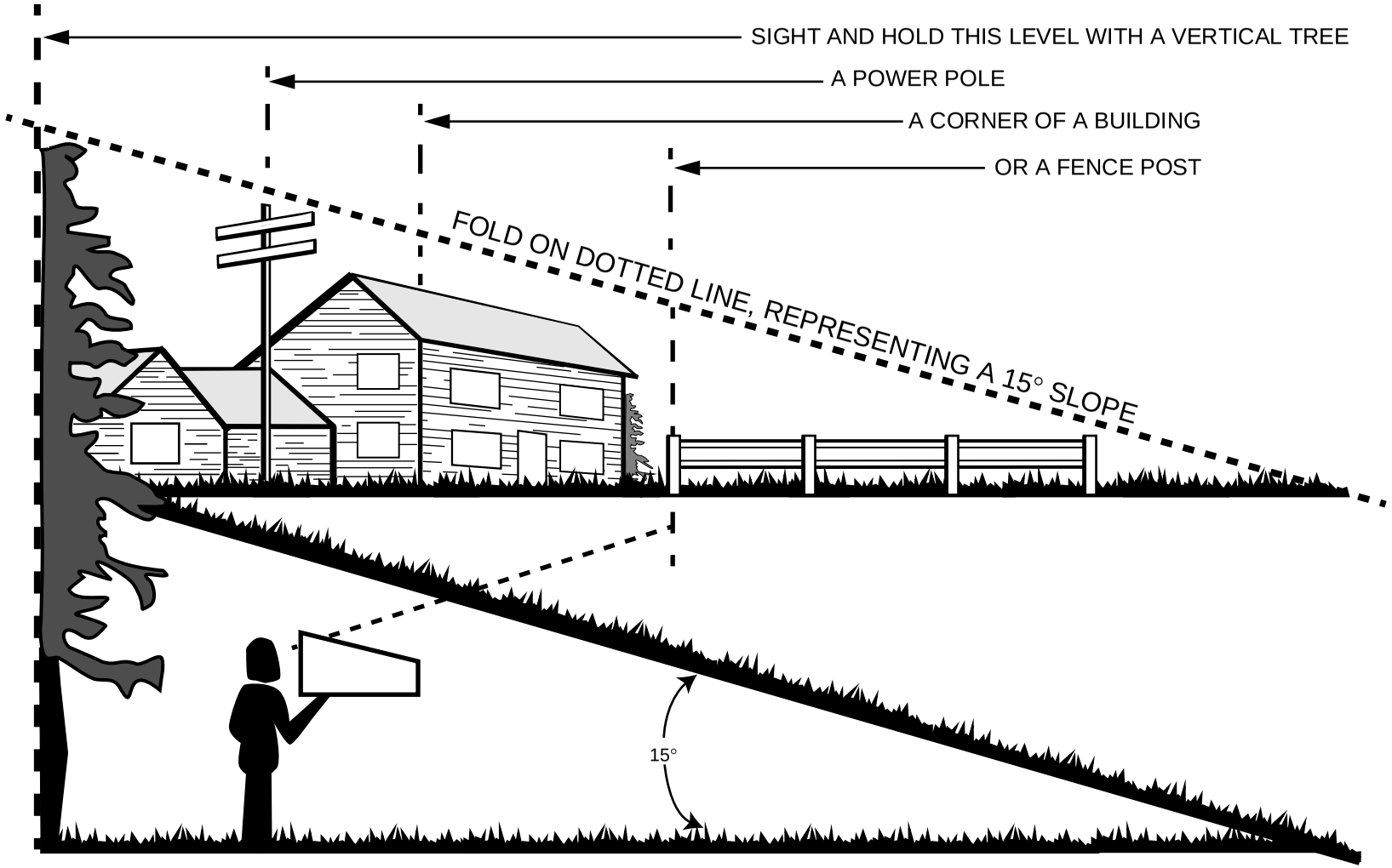
SECTION 3: CALLING CUSTOMER SUPPORT

If you are having difficulty assembling this product or if you have any question regarding the controls, operation or maintenance of this unit, please call the Customer Support Department. You can reach them by calling:

1-800-800-7310

Before you call, make sure that you have your model and serial numbers ready. By having the model and serial numbers ready, you help the Customer Support Representative give you faster service. To find your unit's model and serial number, see SECTION 2: FINDING YOUR MODEL NUMBER.

USE THIS PAGE AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.


SIGHT AND HOLD THIS LEVEL WITH A VERTICAL TREE
A POWER POLE
A CORNER OF A BUILDING
OR A FENCE POST
FOLD ON DOTTED LINE, REPRESENTING A 15° SLOPE
15°

SLOPE GAUGE

WARNING

Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.
Operate RIDING mowers up and down slopes, never across the face of slopes.
Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

SECTION 4: UNPACKING

TO REMOVE UNIT FROM CARTON

1. Remove staples, break glue on top flaps, or cut tape at carton end and peel along top flap to open carton.
2. Remove loose parts if included with unit (i.e., owner's manual, etc.).
3. Cut along dotted lines and lay carton down flat.
4. Remove packing material.
5. Roll or slide unit out of carton. Check carton thoroughly for loose parts.

NOTE: Parts included for assembly of grass catcher are listed on page 8.

TOOLS REQUIRED FOR ASSEMBLY

Pair of Pliers
Phillips Screwdriver †
7/16" or Adjustable Wrench †
† Hardtop Grass Bags Only.

DISCONNECT SPARK PLUG WIRE

Before setting up your lawn mower, disconnect the spark plug wire from the spark plug, and ground it against the engine. See Figure 3.

NOTE: On engines with a rubber boot, attach rubber boot to a bolt on the engine to ground.

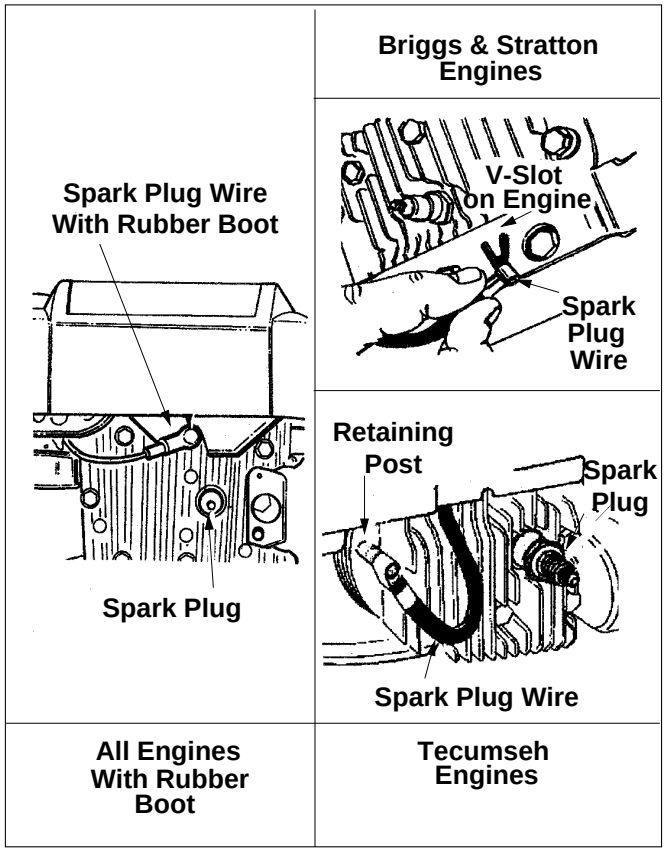


Figure 3

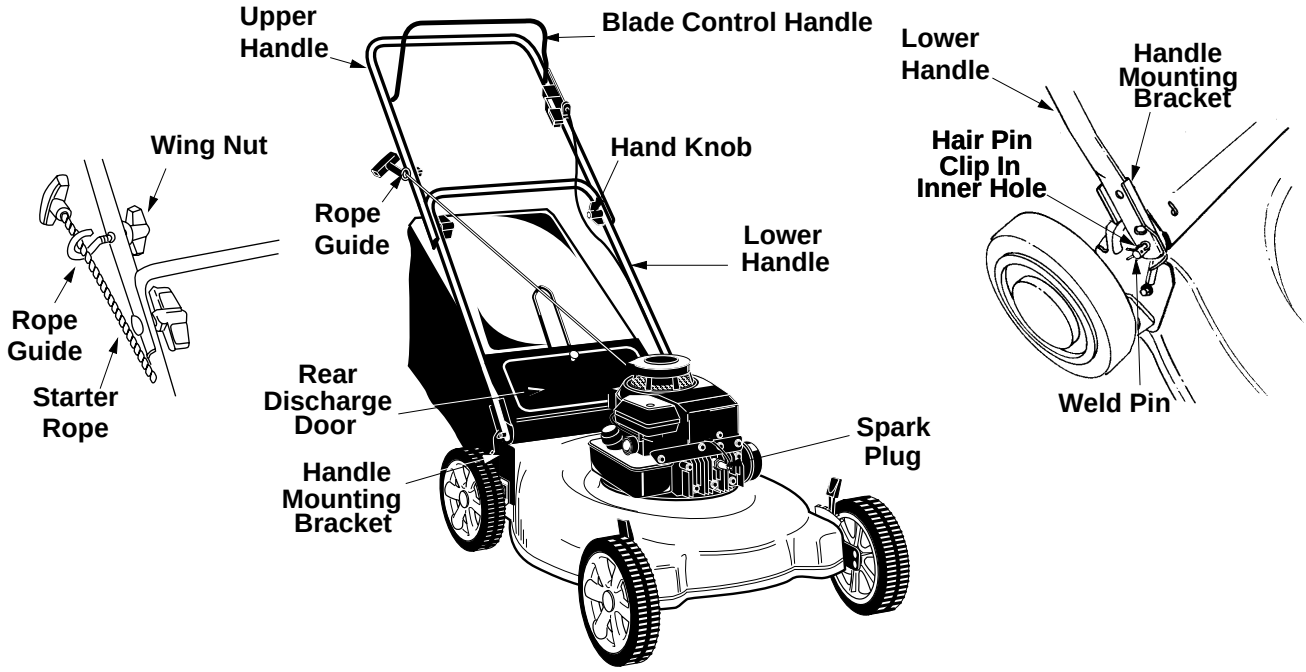


Figure 4

SECTION 5: SET-UP INSTRUCTIONS

This owner's guide covers various models of mowers. Follow only those instructions which pertain to your unit.

IMPORTANT: This unit is shipped WITHOUT GASOLINE or OIL in the engine. Be certain to service engine with gasoline and oil before operating your mower.

NOTE: Reference to right or left hand side of the mower is observed from the operating position.

HOW TO SET-UP YOUR LAWN MOWER

(Refer to Figure 4)

1. Remove any packing material which may be between the upper and lower handles for shipping purposes.
2. Pull up and back on the upper handle to raise the handle into the operating position. Make certain the lower handle is seated securely into the handle mounting brackets. Tighten the hand knobs on each side of the handle (carriage bolts must be seated properly into the handle).

NOTE: Your mower is shipped with the handle in the higher height position. If you wish to lower the height of the handle, refer to the Adjustment Section at this time.

3. Remove the hairpin clips from the outer hole in the weld pins on the handle mounting brackets. Using a pair of pliers, squeeze one leg of the lower handle against the handle mounting bracket. Insert the hairpin clip into the inner hole on the weld pin. Repeat on other side.
4. The rope guide is attached to the right side of upper handle. Loosen the wing nut which secures the rope guide.
5. With the spark plug wire disconnected and grounded, hold the blade control handle against the upper handle, and pull the starter rope out of the engine. Release the blade control handle. Slip the starter rope into the rope guide. Tighten the wing nut.
6. Make certain **all** nuts and bolts are tightened securely.

GRASS CATCHER ASSEMBLY

NOTE: Make certain bag is turned right side out before assembling (warning label will be on the outside).

SOFT GRASS BAG

Parts for Soft Grass Bag:
Front Frame
Rear Frame
Bag

Assemble soft grass bag as follows:

1. Join the rear frame and front frame assembly as shown in Figure 5A.
2. Place bag over frame (black plastic side is the bottom of bag). Slip the openings in the side of the plastic channel on bag over the hooks on the grass catcher frame.
3. Secure bag to frame by working the plastic channels on bag over frame as shown in Figure 5B. All of the plastic channels except center top of bag attach from the outside of bag. Center top of bag attaches from the inside of bag.

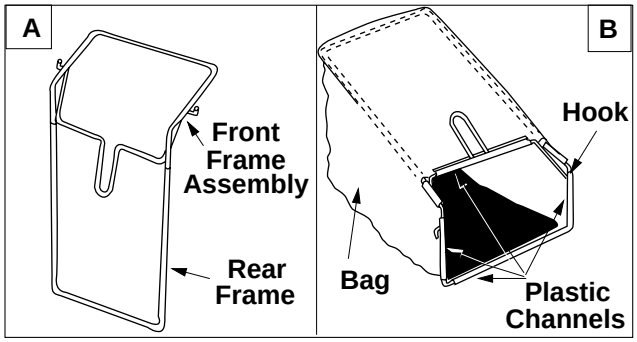


Figure 5

HARDTOP GRASS BAG (Optional)

Parts for Hardtop Grass Bag:
Front Frame
Rear Frame (packed inside hardtop cover)
Bag
Hardtop Cover
Mounting Bracket
Phillips Screw
Hex Lock Nut

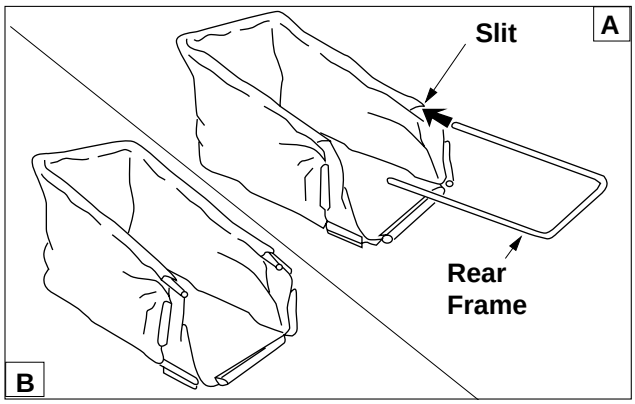


Figure 6

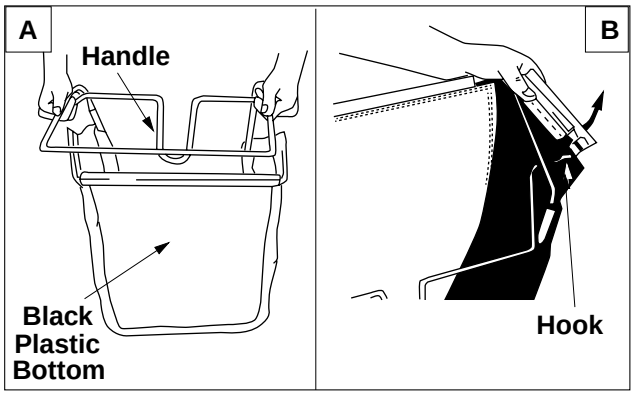


Figure 7

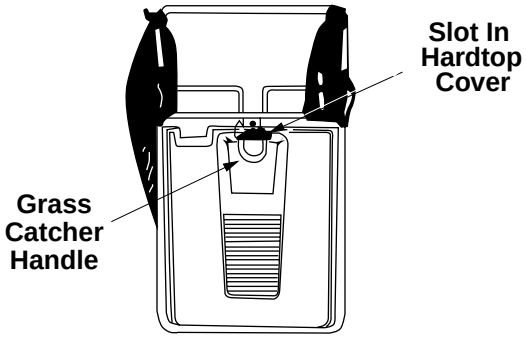


Figure 8

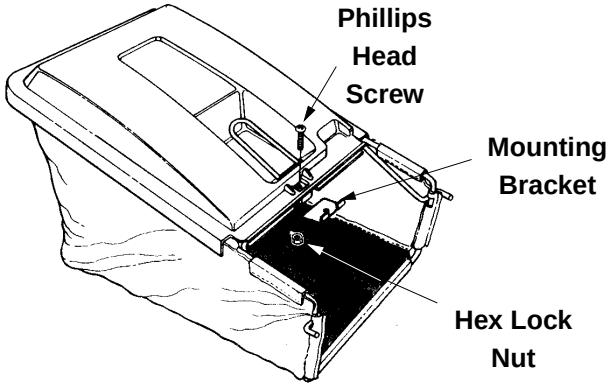


Figure 9

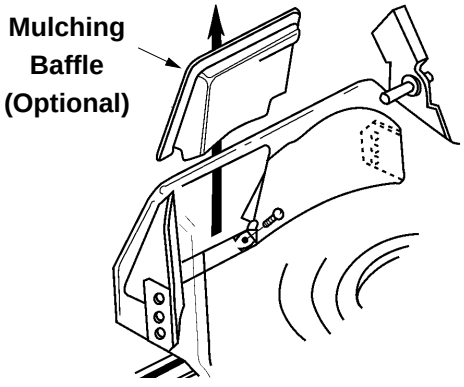


Figure 10

Assemble hardtop grass bag as follows:

1. Insert one end of the rear frame into the slit in the cloth channel on the edge of the grass bag (slits are approximately 6 inches from the end of the bag). See Figure 6A. Feed all the material on one side of the frame before working it around frame. Make certain the other end of rear frame comes out the slit in the other side. See Figure 6B.
2. Slide the ends of the front frame assembly into the ends of the rear frame as shown in Figure 7A. The handle in front frame assembly goes away from the black plastic bottom of the bag. Push the two frames together until the cross piece on the front frame contacts the rear frame.
3. Slip the openings in the side of the plastic channel on bag over hooks on the grass catcher frame. See Figure 7B.
4. Secure front of bag to front frame by working the five plastic channels on bottom, sides and top of bag over frame.
5. Hold the bag and frame so the bag hangs from the frame (is not bunched around the frame). Slide the handle on the grass catcher frame down into the slot in the hardtop cover as shown in Figure 8.
6. Press the rear frame into the two tabs at the back of the hardtop cover and the cross bar on the front frame into the channel on the front of the hardtop cover. Some force may be required.
7. Place the mounting bracket under the front of the handle, with the tabs on the bracket facing up. Insert phillips head screw down through the hardtop cover and mounting bracket. Secure with hex lock nut. See Figure 9.

ATTACHING GRASS CATCHER TO MOWER

NOTE: If your mower is equipped with an optional mulching baffle, it is in place on the mower. To remove the mulching baffle, lift the rear discharge door on the mower. Remove the mulching baffle. See Figure 10.

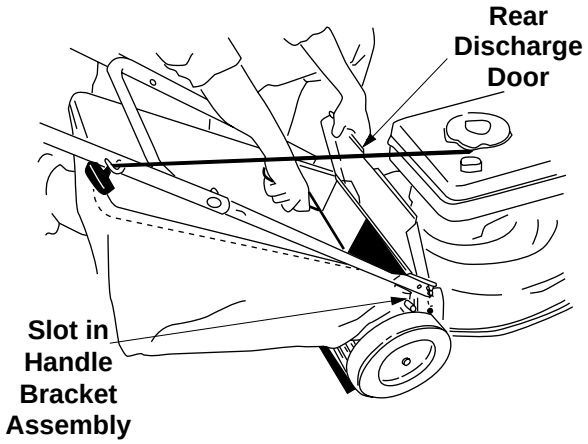


Figure 11

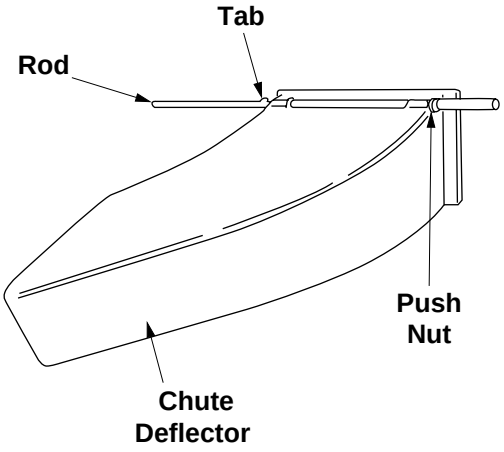


Figure 12

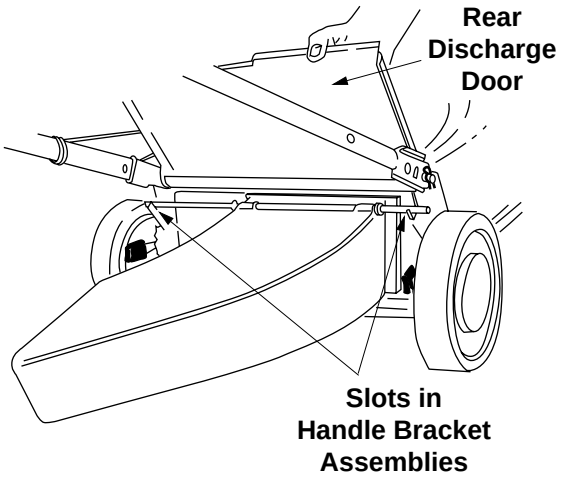


Figure 13

To attach the grass catcher:

1. Lift the rear discharge door on the mower.

NOTE: Make certain cables are routed to the outside of the handle so they are not in the way when attaching the grass catcher.

2. Place the hooks on the grass catcher into the slots in the handle bracket assemblies. See Figure 11. Release the rear discharge door.

To remove the grass catcher, lift the rear discharge door on the mower. Lift the grass catcher up, out of the slots in the handle bracket assemblies. Release the rear discharge door.

WARNING: Never operate the mower unless the hooks on the grass catcher are seated in the slots on the handle bracket assemblies, and the rear discharge door rests firmly against the top of the grass catcher.

OPTIONAL CHUTE DEFLECTOR

If your mower is equipped with the optional chute deflector, assemble as follows.

1. Slide the rod into the upper edge of the chute deflector so the tab on the rod is toward the left side of the chute deflector. When assembled correctly, the rod will extend further to the left side than the right side. See Figure 12.
2. Slide the push nut onto the right side of the rod to secure.

ATTACHING CHUTE DEFLECTOR TO MOWER

Lift the rear discharge door on the mower. Place the ends of the rod into the slots in the handle bracket assemblies. See Figure 13. Release the rear discharge door.

To remove the chute deflector, lift the rear discharge door on the mower. Lift the chute deflector up, out of the slots in the handle bracket assemblies. Release the rear discharge door.

SECTION 6: CONTROLS

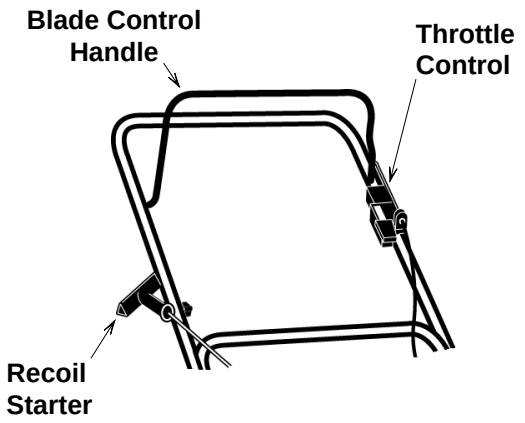


Figure 14

BLADE CONTROL HANDLE

WARNING: This control mechanism is a safety device. Never attempt to bypass its operations.

The blade control handle is located on the upper handle of the mower. See Figure 14. The blade control handle must be depressed in order to operate the unit. Release the blade control handle to stop the engine and blade.

WARNING: The blade will be rotating whenever the engine is running.

THROTTLE CONTROL

The throttle control is located on the side of the upper handle. It is used to regulate the engine speed.

WARNING: The throttle control cannot be used to stop the engine.

RECOIL STARTER

The recoil starter handle is attached to the handle and is used to start the engine. See Figure 14.

SECTION 7: OPERATION

WARNING: Keep hands and feet away from the chute area on cutting deck. See Warning Label, Figure 1 on page 4.
The operation of any lawn mower can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields. We recommend wide vision safety mask for over spectacles or standard safety glasses.

NOTE: For shipping purposes your mower is set with the wheels in a low cutting height position. For best results raise the cutting position until it is determined which height is best for your lawn. See cutting height adjustment section.

GAS AND OIL FILL-UP

Service the engine with gasoline and oil as instructed in the separate engine manual packed with your mower. Read instructions carefully.

WARNING: Never fill fuel tank indoors, with engine running or until the engine has been allowed to cool for at least two minutes after running.

BEFORE STARTING

1. Attach spark plug wire to spark plug. It unit is equipped with a rubber boot over the end of the spark plug wire, make certain the metal cap on the end of the spark plug wire (inside the rubber boot) is fastened securely over the metal tip on the spark plug.

TO START ENGINE AND ENGAGE BLADE

1. Move throttle control lever all the way forward.
2. If engine is equipped with a primer, prime engine as instructed in the separate engine manual packed with you unit.
3. Standing behind the unit, depress the blade control handle and hold it against the upper handle.
4. Grasp starter handle and pull rope out slowly until engine reaches start of compression cycle (rope will pull slightly harder at this point). Let the rope rewind slowly.
5. Pull rope with a rapid, continuous, full arm stroke. Keep a firm grip on starter handle. Return it slowly to the rope guide.

6. After engine starts, move throttle control to desired engine speed. (Mower is designed to be operated at full throttle.)

NOTE: If any problems are encountered, refer to the Trouble Shooting Guide on Page 16.

TO STOP ENGINE AND BLADE

1. Move throttle control lever to the SLOW position.
2. Release the blade control handle to stop the engine and blade.

WARNING: The blade continues to rotate for a few seconds after the engine is shut off.

3. Disconnect the spark plug wire and ground it against the engine to prevent accidental starting while equipment is unattended.

USING YOUR ROTARY MOWER

WARNING: Never operate your unit without either the rear deflector or entire grass catcher assembly in place.

Be sure that lawn is clear of stones, sticks, wire, or other objects which could damage lawn mower or engine. Such objects could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator and others.

For the best results, do not cut wet grass because it tends to stick to the underside of the mower, preventing proper discharge of grass clippings, and could cause you to slip and fall. New grass, thick grass or wet grass may require a narrower cut. Blade speed should be adjusted to the condition of the lawn.

For a healthy lawn, never cut more than one-third of the total length of the grass at any one cutting. Lawn should be cut in the fall as long as there is growth.

This mower is designed to be operated at full throttle to give you the best cut and do the most effective job of bagging the cut grass.

WARNING: If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower. Extensive vibration of the mower during operation is an indication of damage. The unit should be promptly inspected and repaired.

USING YOUR MULCHER

(Mulching Kit is Optional Equipment)

For effective mulching, do not cut wet grass because it tends to stick to the underside of the deck, preventing proper mulching of grass clippings. New or thick grass may require a narrower cut. The ground speed should be adjusted to the condition of the lawn. If mowing has been delayed and the grass has been allowed to grow in excess of 4", mulching is not recommended. Mow using the grass bag (if so equipped) to reduce the grass height to 3-1/4" maximum before mulching.

SECTION 8: ADJUSTMENTS

WARNING: Do not at any time make any adjustment to lawn mower without first stopping the engine and disconnecting spark plug wire.

CUTTING HEIGHT ADJUSTMENT

An adjusting plate and thumb lever at each wheel position provides cutting height adjustment. Each adjusting plate has nine height positions. Height of cut will be changed when the thumb lever is moved from one hole to another. Simply depress the lever towards wheel and move wheel and lever assembly to desired position. All wheels must be placed in the same relative position. See Figure 15.

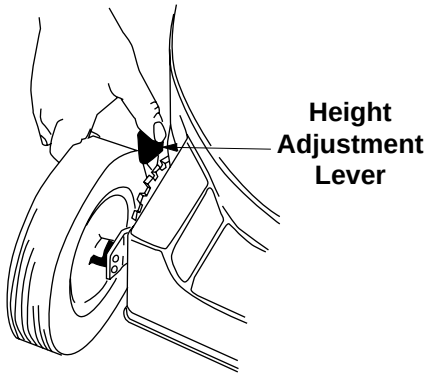


Figure 15

HANDLE HEIGHT ADJUSTMENT

Your mower is shipped with the handle in the higher height position. To lower the handle height, proceed as follows.

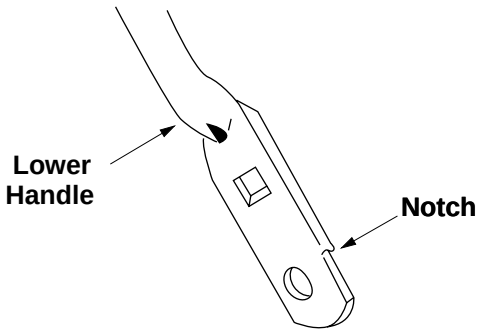


Figure 16

1. Remove the starter rope from the rope guide.
2. Remove the upper handle by removing the hand knobs and carriage bolts. Lay the upper handle out of the way, being careful not to bend or kink the cables.
3. Remove the hairpin clips from the weld pins on the handle brackets. Press outward on the legs of the lower handle, and remove it from the mower.
4. Turn the lower handle around so the notches on the bottom of the lower handle are facing forward as shown in Figure 16. Reassemble, placing the bottom holes in the handle over the weld pins in the handle mounting bracket.
5. Reassemble the upper handle.
6. Place the hairpin clips in the inner holes in the weld pins and attach the starter rope as instructed in the Set-Up Instructions.

THROTTLE CONTROL ADJUSTMENT

If the throttle control needs adjustment or if it has been replaced, adjust as follows.

1. Remove the screw shown in Figure 17. Remove the cable clamp from the cable.

NOTE: If you have a Tecumseh engine, simply loosen the screw shown in Figure 17 so the cable will move freely beneath the clamp. It is not necessary to remove the screw and clamp completely.

2. Push the throttle control lever on the handle all the way forward as far as it will go, then back it off **one "click."** Make certain the throttle control lever remains in this position.
3. Push the control lever on the engine as far toward the **rear** of the engine as it will go. Secure the cable in this position with the cable clamp and screw.
4.

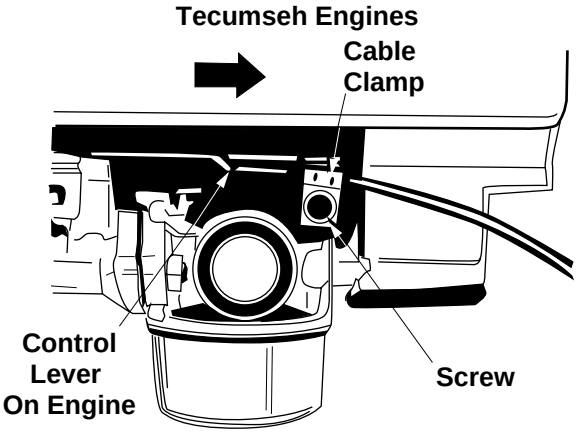


Figure 17

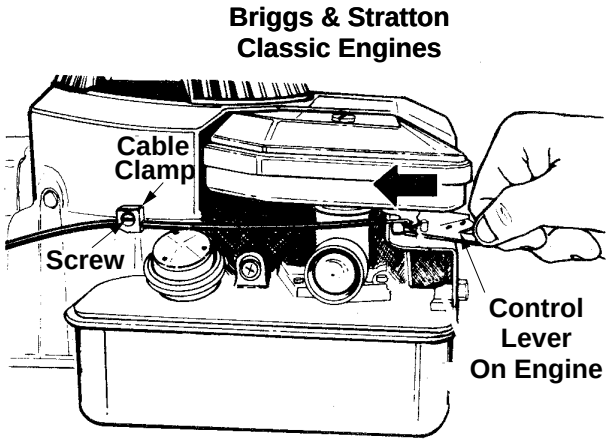


Figure 18

CARBURETOR ADJUSTMENTS

WARNING: If any adjustments are made to the engine while the engine is running (e.g. carburetor), keep clear of all moving parts. Be careful of heated surfaces and muffler.

Minor carburetor adjustments may be required to compensate for differences in fuel, temperature, altitude and load. To adjust carburetor, refer to the separate engine manual packed with your mower.

NOTE: A dirty air cleaner will cause an engine to run rough. Be certain air cleaner is clean and attached to the carburetor before adjusting carburetor.

SECTION 9: LUBRICATION

WARNING: Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of work on lawn mower.

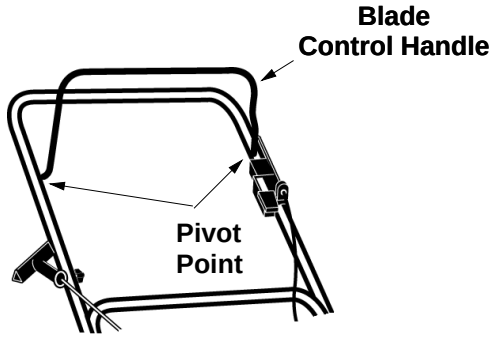


Figure 19

Blade Control: Lubricate the pivot points on the blade control handle and the brake cable at least once a season with light oil. See Figure 19. The blade control must operate freely in both directions.

Rear Discharge Door: The torsion springs and pivot points should be lubricated periodically with light oil to prevent any rust or binding. Door must work freely.

Wheels: The wheels require no lubrication. However, if the wheels are removed for any reason, lubricate the surface of the axle bolt and the inner surface of the wheel with light oil. Engine oil may also be used.

Engine: Follow engine manual for lubrication instructions.

SECTION 10: MAINTENANCE

WARNING: Be sure to disconnect and ground the spark plug wire before performing any repairs or maintenance.

NOTE: When tipping the unit, empty the fuel tank and keep engine spark plug side up.

TROUBLE SHOOTING

Refer to page 16 of this manual for trouble shooting information.

CUTTING BLADE

When removing the cutting blade for sharpening or replacement, protect hands by using heavy gloves or a rag to grasp the cutting blade. Remove the bolt and blade support or bell washer which hold the blade and adapter to the engine crankshaft. Remove the blade and adapter from the crankshaft.

WARNING: Periodically inspect the blade adapter for cracks, especially if you strike a foreign object. Replace when necessary.

When sharpening the blade, follow the original angle of grind as a guide. It is extremely important that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to the mower and could break, causing personal injury.

The blade can be tested by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly. It is recommended that the blade always be removed from the adapter for the best test of balance.

Before reassembling the blade and the blade adapter to the unit, lubricate the engine crankshaft and the inner surface of the blade adapter with light oil (or engine oil). Lubricating the bolt holes, bolts and inner surface of the nuts is also recommended.

BLADE MOUNTING

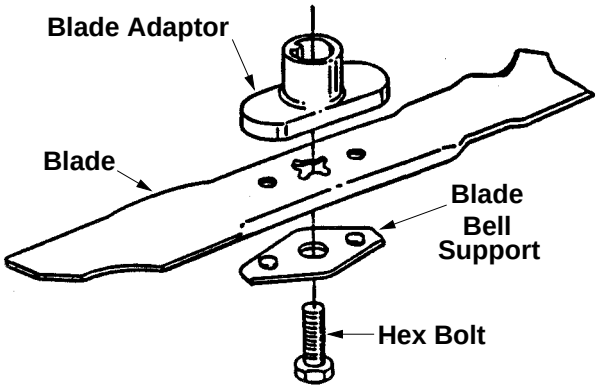


Figure 20

Install the blade adapter on the crankshaft with the “star” away from the engine. Refer to Figure 20. Place the blade with the side marked bottom (or with part number) facing away from the adapter. Align the blade bell support over the blade with the tabs in the holes of the blade and insert the hex bolt. Tighten the hex bolt to the torque listed in the “Blade Mounting Torque” section below.

Blade Mounting Torque

Center Bolt: 450 in. lbs. min., 600 in. lbs. max.

To ensure safe operation of your unit, **all** nuts and bolts must be checked periodically for correct tightness.

DECK

The underside of the mower deck should be cleaned after each use to prevent a buildup of grass clippings, leaves, dirt or other matter. If this debris is allowed to accumulate, it will invite rust and corrosion, and may cause an uneven discharge of grass clippings at the next cutting.
The deck may be cleaned by tilting the mower and scraping clean with a suitable tool (make certain the spark plug wire is disconnected).

ENGINE

R**efer to the separate engine manual for engine maintenance instructions.**

Maintain **engine oil** as instructed in the separate engine manual packed with your unit. Read and follow instructions carefully.

Service **air cleaner** every 25 hours under normal conditions. Clean every few hours under extremely dusty conditions. Poor engine performance and flooding usually indicates that the air cleaner should be serviced. To service the air cleaner, refer to the separate engine manual packed with your unit.

The **spark plug** should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season; check engine manual for correct plug type and gap specifications.

Clean the engine regularly with a cloth or brush. Keep the cooling system (blower housing area) clean to permit proper air circulation which is essential to engine performance and life. Be certain to remove all grass, dirt and combustible debris from muffler area.

REAR FLAP REPLACEMENT

The rear flap is attached to the back of the mower deck, and is designed to minimize the possibility that objects will be thrown from the rear of the mower toward the operator. If the rear flap becomes damaged, replace as follows.

To remove the old rear flap, cut off the flat end of the wire rod which secures it to the deck using a pair of side-cutters. Attach the new rear flap using the new rod provided with the rear flap, bending the ends of the rod over to secure.

SECTION 11: OFF-SEASON STORAGE

The following steps should be taken to prepare lawn mower for storage.

1. Clean and lubricate mower thoroughly as described in the lubrication instructions.
2. Refer to engine manual for correct engine storage instructions.
3. Coat mower’s cutting blade with chassis grease to prevent rusting.
4. Store mower in a dry, clean area. Do not store next to corrosive materials, such as fertilizer.

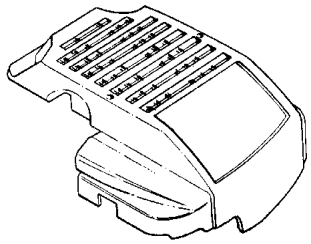
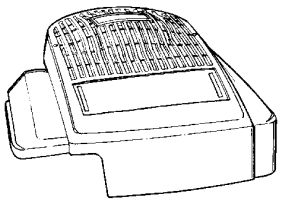
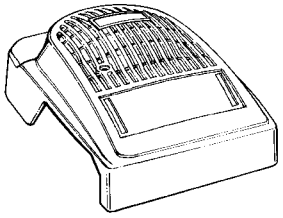
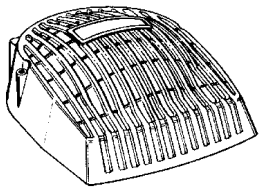
NOTE: When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rust-proof the equipment. Using a light oil or silicone, coat the equipment, especially cables and all moving parts.

SECTION 12: TROUBLE SHOOTING GUIDE

Trouble	Possible Cause(s)	Corrective Actions
Engine fails to start	Blade control handle disengaged.	Engage blade control handle.
	Spark plug wire disconnected.	Connect wire to spark plug.
	Dirty aircleaner.	Refer to the engine manual packed with your unit.
	Primer button not depressed.	Refer to the engine manual packed with your unit.
	Throttle control lever not in correct starting position (if so equipped).	Move throttle lever to FAST or START position.
	Fuel tank empty or stale fuel.	Fill tank with clean fresh gasoline. Fuel will not last over thirty days unless a fuel stabilizer is used.
	Blocked fuel line (if so equipped).	Clean fuel line.
	Faulty spark plug.	Clean, adjust gap or replace.
	Engine flooded.	Refer to the engine manual packed with your unit.
Engine runs erratic	Unit running in START position.	Move throttle lever to FAST position.
	Spark plug wire loose.	Connect and tighten spark plug wire. Check spark plug for fouling.
	Blocked fuel line (if so equipped) or stale fuel.	Clean fuel line; fill tank with clean, fresh gasoline. Fuel will not last over thirty days unless a fuel stabilizer is added.
	Vent in gas cap plugged.	Clear vent or threads or replace.
	Water or dirt in fuel system.	Drain fuel tank. Refill with fresh fuel.
	Dirty air cleaner.	Refer to the engine manual packed with your unit.
	Carburetor out of adjustment.	Refer to the engine manual packed with your unit.
Engine overheats	Engine oil level low.	Fill crankcase with proper oil.
	Dirty aircleaner.	Refer to the engine manual packed with your unit.
	Air flow restricted.	Stop engine and disconnect spark plug wire. Remove blower housing and clean.
	Carburetor not adjusted properly.	Refer to the engine manual packed with your unit or see an authorized service dealer.*
Occasional skip (hesitates) at high speed	Spark plug gap too close.	Adjust gap to .030".
	Carburetor idle mixture adjustment improperly set.	Refer to the engine manual packed with your unit.
Idles poorly	Spark plug fouled, faulty or gap too wide.	Reset gap to .030" or replace spark plug.
	Carburetor improperly adjusted.	Refer to the engine manual packed with your unit.
	Dirty air cleaner.	Refer to the engine manual packed with your unit.
Excessive vibration	Cutting blade loose or unbalanced.	Tighten blade and adapter. Balance blade.
	Bent cutting blade.	See an authorized service dealer.
Mower will not mulch grass	Engine speed too low.	Set throttle between 3/4 and full throttle.
	Wet grass.	Do not mow when grass is wet; wait until later to cut.
	Excessively high grass.	Mow once at a high cutting height, then mow again at desired height or make a narrower cutting swath (1/2 width).
Uneven cut	Wheels not positioned correctly.	Place all four wheels in same height position.
	Dull blade.	Sharpen or replace blade.

Note: For repairs beyond the minor adjustments above, contact your local authorized service dealer.

Shroud Chart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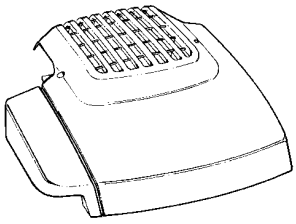		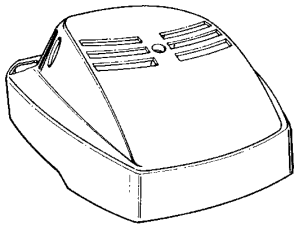		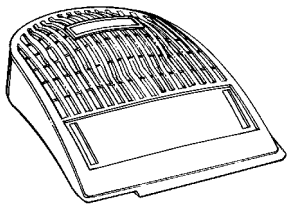		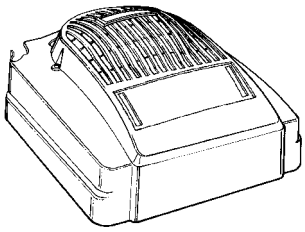	
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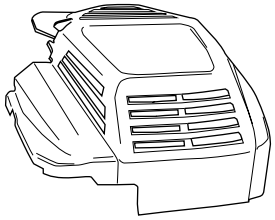		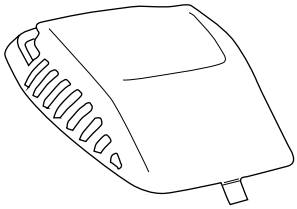		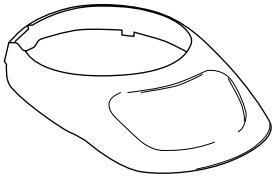			
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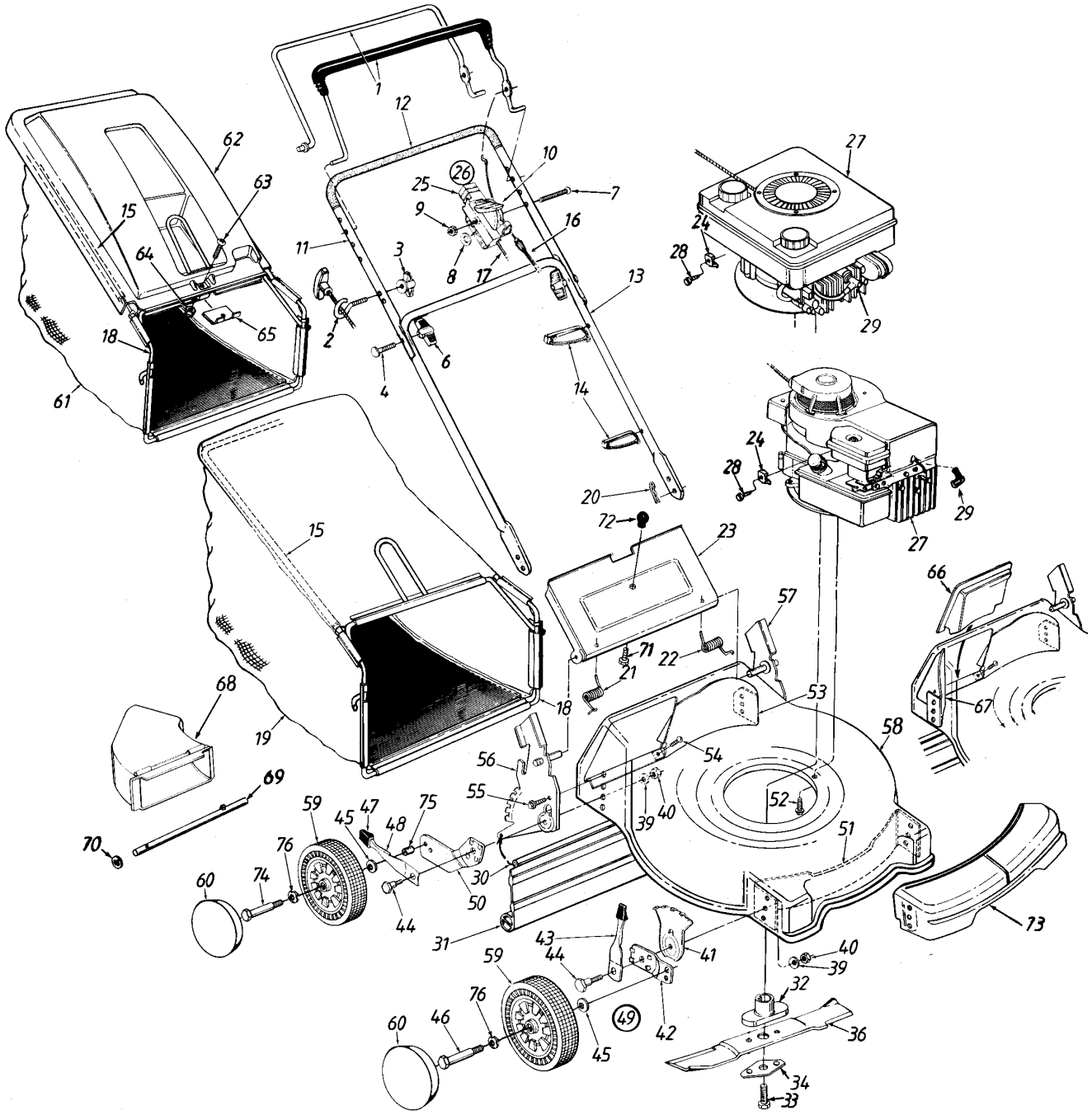
Hardware:710-1256		Hardware:710-1237		Hardware: - -		Hardware:	

Model 410 Series



WHEEL CHART	
Wheels w/o Bearings	Wheels with Bearings Brg. Part No. 741-0484
Bar Tread	Link Tread
734-1781 Grey, Slot Hub 734-1841 Grey, Aero 634-0020 Grey, Disc Hub	734-1819 Grey

Model 410 Series

REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
1	747-0824		Control Handle (Std.)	41	15261A		Height Adj. Plate
	647-0004		Control Handle Ass'y. (Deluxe)	42	15262B		Pivot Bar
2	710-1205		Rope Guide	43	14832		Spring Lever Ass'y. w/Knob
3	720-0279		Handle Knob 1/4-20 Thd.	44	738-0507B		Shld. Bolt .5" Dia. x .357"
4	710-1174		Curved Hd. Bolt 5/16-18 x 2" Lg	45	736-0105		Bell-Wash. .38" I.D. x .88" O.D.
6	720-0276		Hand Knob	46	738-0102		Axle Bolt
7	710-0605		Oval C-Sunk Mach. Scr.	47	720-0190		Spring Lever Knob
8	736-0501		Spr. Wash. .66" I.D.	48	732-0417A		Spring Lever
9	712-0324		Hex L-Nut 1/4-20 Thd.	49	14578		Height Adj. Ass'y. Comp. - R.H.
10	746-0876		Throttle Lever		14579		Height Adj. Ass'y. Comp. -L.H.
11	749-0538C		Upper Handle				(Not Shown)
12	720-0295		Foam Grip (Optional)	50	14765		Pivot Bar R.H.
13	749-0928		Lower Handle		14766		Pivot Bar L.H. (Not Ill.)
14	726-0240		Cable Tie	51	782-5002		Front Baffle
15	764-0310		Rear Catcher Frame	52	710-0654A		Hex L-Wash. Hd. Scr.
16	746-0550		Control Cable-39" (410, 412)				3/8-16 x 1" Lg.
	746-0737		Control Cable-51" (411)	53	782-5003		Rear Baffle
17	746-0842		Throttle Control Wire - 51" (410,412)	54	710-1017		Torx Mach. AB-Tap Scr. 1/4 x 62" Lg.
	746-0847		Throttle Control Wire - 42" (411)	55	710-0896		Hex Ind-Wash.Scr. 1/4 -14 x .625 Lg.
18	764-0311		Front Catcher Frame				
19	764-0309		Grass Bag	56	682-0516		Handle Brkt. Ass'y. - R.H.
	764-0476A		Grass Bag w/Logo (Optional)	57	682-0515		Handle Brkt. Ass'y. - L.H.
20	714-0104		Int. Cotter Pin 5/16" Dia.	58	782-0310A		21" R.D. Deck
21	732-0678		Door Spring - R.H.	59	(See Chart)		Wheel Assy. Comp.
22	732-0677		Door Spring - L.H.	60	731-0981A		Hub Cap - Gray , Rad. Spoke
23	782-7000		Rear Discharge Door		720-0249		Hub Cap - Gray, Euro
24	751B213146		Cable Clamp (B&S)	61	764-0433		Grass Bag (Optional)
	7510007775		Casing Clamp (Tec.)	62	731-1322A		Hard Top Cover (Optional
25	646-0875		Throttle Body		731-1876		Hard Top Cover w/Logo (Opt.)
26	811-00185		Throttle Box Comp. (Incl. Ref. 7, 8, 9, 10, 25)	63	710-0286		Pan Hd. Mach. Scr. 1/4-20 x .5" Lg.(Optional)
27			Engine	64	712-0324		Hex Nylon L-Nut 1/4-20 Thd. (Opt.)
28	710-1237		Hex Wash. Hd. Scr. #10-32 x .62" Lg. (B&S)	65	782-9011		Mounting Bracket (Optional)
				66	782-5007A		Mulching Baffle Plug (Optional)
	710-0871		Hex Slot Scr. #10-32:.38" (Tec.)	67	782-5004		Mulching Baffle - R.R. (Optional)
29	735-0639		Spark Plug Boot (Optional)	68	731-1405		Deflector (Optional)
30	732-0700		Wire Rod	69	711-0996		Rod (Optional)
31	731-1236		Rear Flap	70	726-0201		Push Speed Nut (Optional)
32	753-0588		Blade Adapter Kit (Incl. Ref. 33 & 34)	71	710-0192		Truss Scr. #10-24 x .38" Lg.
				72	720-0275		Knob
33	710-1044		Hex Bolt 3/8-24 x 1.5" Lg.	73	731-1506		Deck Shroud (Optional)
34	736-0524A		Blade Bell Support	74	738-0213		Rear Axle Bolt †
36	742-0741		21" Mulching Blade (Optional)		738-0102		Axle Bolt
	742-0641		21" Blade (Std.)	75	750-0535		Spacer †
39	736-0356		Bell-Wash. .39" I.D. x 1.38"	76	736-0504		Wave Washer †
40	712-0798		Hex Nut 3/8-16 Thd.				

† Used on units with ball bearing rear wheels.

MANUFACTURER'S LIMITED WARRANTY

For ONE YEAR from the date of retail purchase within the United States of America, its possessions and territories, the manufacturer will, at its option, repair or replace, for the original purchaser, free of charge, any part or parts found to be defective in material or workmanship. This warranty covers units which have been operated and maintained in accordance with the operating instructions furnished with the unit, and which have not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance or alteration.

Normal wear parts or components thereof are subject to separate terms as noted below in the "No Fault Ninety Day Consumer Warranty" clause.

All normal wear part failures will be covered on this product for a period of 90 days regardless of cause. After 90 days, but within the one year period, normal wear parts failures will be covered ONLY IF caused by defects in material or workmanship of OTHER component parts. Normal wear parts are defined as batteries*, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates and tires.

How to obtain service: Warranty service is available, with proof of purchase, through your local authorized service dealer. To locate the dealer in your area, please check the yellow pages or contact the Customer Service Department of the manufacturer, P. O. Box 368022, Cleveland, Ohio 44136-9722. Phone 1-800-800-7310. The return of a complete unit will not be accepted by the factory unless prior written permission has been extended by the service department of the manufacturer.

Transportation charges: Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser.

Units exported out of the United States: The manufacturer does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through the manufacturer's authorized channels of export distribution.

Other Warranties:

1. The engine or component parts thereof carry separate warranties from their manufacturers. Please refer to the applicable manufacturer's warranty on these items.
2. *Batteries are covered by a 90-day replacement warranty.
3. Log splitter pumps, valves and cylinders or component parts thereof are covered by a one year warranty.
4. All other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose, are hereby expressly disclaimed in their entirety.
5. The provisions as set forth in this warranty provide the sole and exclusive remedy of the manufacturer's obligations arising from the sales of its products. The manufacturer will not be liable for incidental or consequential loss or damage.

How state law relates to this warranty: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Certain disclaimers are not allowed in some states and therefore they may not apply to you under all circumstances.

NOTE: This warranty does not cover routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments, clutch adjustments or deck adjustments. Nor does this warranty cover normal deterioration of the exterior finish due to use or exposure.